

Applic. No.: 09/645,807  
Amdt. Dated October 31, 2005  
Reply to Office action of August 22, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1 (currently amended): A method of producing an electrode configuration, which comprises the following steps:

forming a first conductive layer of the electrode configuration of a material substantially unetchable by chemical dry-etching, the first conductive layer containing a material selected from the group consisting of a 4d transition metal, a 5d transition metal, a conductive nitride thereof, and a conductive oxide thereof;

forming a second conductive layer of the electrode configuration on the first conductive layer from a material etchable by chemical dry-etching, the second conductive layer containing a material selected from the group consisting of aluminum, titanium, tungsten, a conductive silicide thereof, a conductive nitride thereof, and a conductive oxide thereof;

structuring the second conductive layer to form a structured second layer;

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chemical-physical dry etching the first conductive layer while using the structured second layer as a mask;

applying at least one insulation layer on the electrode configuration, and structuring the insulation layer to form at least two contact holes with different depths; and

subjecting the electrode configuration to overetching during etching of the contact holes having different depths;

preventing, by the second conductive layer, breaking through of the electrode configuration and formation of redeposition of the material of the first conductive layer during the overetching.

2 (previously presented): The method according to claim 1, wherein the chemical-physical dry etching step comprises etching the first conductive layer with a plasma etching process.

3 (previously presented): The method according to claim 1, which comprises, during the chemical-physical dry etching step of the second conductive layer, providing at least one reactive substance which reacts with the material of the

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second conductive layer to form a non-volatile compound on the surface of the second conductive layer.

4 (original): The method according to claim 3, wherein the reactive substance is a reactive gas.

5 (original): The method according to claim 4, wherein the reactive gas is a gas selected from the group consisting of oxygen, nitrogen, hydrogen, halogens, gaseous halogen compounds, and a mixture thereof.

6 (previously presented): The method according to claim 1, which comprises providing an inert gas during the step of chemical-physical dry etching the first conductive layer.

7 (previously presented): The method according to claim 1, wherein the chemical-physical dry etching step of the first conductive layer is performed with an etching process selected from the group consisting of reactive ion etching, magnetically enhanced reactive ion etching, electron cyclotron resonance etching, and inductively coupled plasma etching.

8 (previously presented): The method according to claim 1, further comprising:

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depositing a conductive layer and filling in the contact holes.

9 (previously presented): The method according to claim 1, wherein the insulation layer is a silicon oxide layer.

10 (previously presented): The method according to claim 1, wherein the applying step comprises producing a silicon oxide layer by a TEOS process.

11 (previously presented): The method according to claim 1, wherein the applying step comprises producing a silicon oxide layer by a silane process.

12 (previously presented): The method according to claim 1, wherein the insulation layer contains a silicon layer.

13 (original): The method according to claim 8, wherein the depositing step comprises depositing a material selected from the group consisting of aluminum, tungsten, and copper.

14 (previously presented): The method according to claim 1, further comprising chemical dry etching the second conductive layer while using the first structured layer as a barrier for the chemical dry-etching.

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15-22 (cancelled).

23 (new): A method of producing an electrode configuration, which comprises the following steps:

forming a first conductive layer of the electrode configuration of a material substantially unetchable by chemical dry-etching, the first conductive layer containing a material selected from the group consisting of ruthenium, rhodium, palladium, osmium, iridium, platinum, gold, silver and rhenium;

forming a second conductive layer of the electrode configuration on the first conductive layer from a material etchable by chemical dry-etching, the second conductive layer containing a material selected from the group consisting of aluminum, titanium, tungsten, a conductive silicide thereof, a conductive nitride thereof, and a conductive oxide thereof;

structuring the second conductive layer to form a structured second layer;

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chemical-physical dry etching the first conductive layer while using the structured second layer as a mask;

applying at least one insulation layer on the electrode configuration, and structuring the insulation layer to form at least two contact holes with different depths; and

subjecting the electrode configuration to overetching during etching of the contact holes having different depths;

preventing, by the second conductive layer, breaking through of the electrode configuration and formation of redeposition of the material of the first conductive layer during the overetching.

24 (new): A method of producing an electrode configuration, which comprises the following steps:

forming a first conductive layer of the electrode configuration of a material substantially unetchable by chemical dry-etching, the material for forming the first conductive layer being selected from the group of platinum metals;

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forming a second conductive layer of the electrode configuration on the first conductive layer from a material etchable by chemical dry-etching, the material for forming the second conductive layer being titanium nitride;

structuring the second conductive layer to form a structured second layer;

chemical-physical dry etching the first conductive layer while using the structured second layer as a mask;

applying at least one insulation layer on the electrode configuration, and structuring the insulation layer to form at least two contact holes with different depths; and

subjecting the electrode configuration to overetching during etching of the contact holes having different depths;

preventing, by the second conductive layer, breaking through of the electrode configuration and formation of redeposition of the material of the first conductive layer during the overetching.